APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,313	02/27/2006	Freddy F Snijder	US 030003	4746

24737   7590   05/22/2008
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER
CHOKSHI, PINKAL R

ART UNIT	PAPER NUMBER
2623	

MAIL DATE	DELIVERY MODE
05/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>27 February 2006</u>.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-22</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-22</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>21 June 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>6/21/05</u>.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   **Claims 1, 2, 5-11, 13-15, 17 and 18** are rejected under 35 U.S.C. 103(a) as

being unpatentable over US Patent 6,633,651 B1 to Hirzalla et al (hereafter referenced

as Hirzalla) in view of US Patent 5,436,653 to Ellis et al (hereafter referenced as Ellis).

Regarding **claim 1**, "an apparatus for playing video content" reads on the

apparatus that process video for the automatic recognition of video sequences

(col.1, lines 5-8) disclosed by Hirzalla and represented in Fig. 2.

As to "each video stream including a multiplicity of scenes (62.sub.1,

62.sub.2, 64.sub.1, 64.sub.2, 66.sub.1, 66.sub.2, 68.sub.1, 68.sub.2), each

scene being described by a corresponding scene signature" Hirzalla discloses

(col.1, lines 38-42) that the video stream received in receiver consists of

sequences of frames with digital signatures.

As to "a means (104) for comparing the selected scene signature with

scene signatures of the stored video streams (60.sub.1, 60.sub.2) to identify one

or more scenes whose scene signature is similar to the selected scene

signature" Hirzalla discloses (col.1, lines 37-57; col.2, lines 13-15) that the

processor compares stored signatures with live or recorded video stream to find

a match.

As to "a means (100) for playing the at least one scene whose scene

signature is identified as similar to the selected scene signature" Hirzalla

discloses (col.3, line 66-col.4, line 3) that after a match is found, user receives an

alert signal on the display device to play the matched scene.

Hirzalla meets all the limitations of the claim except "the apparatus

including: a video content means (12) for storing at least one video stream

(60.sub.1, 60.sub.2)." However, Ellis discloses (col.6, lines 40-49) that the

audio/video signals received in apparatus are being stored in the device. As to

"a selection means (44) for selecting a scene signature which is descriptive of

video content of a scene a user wants to view" Hirzalla discloses (col.1, lines 45-

48; col.2, lines 13-20) that a candidate's frame signature is created on a real time

basis from successive overlapping groups of frames. However, Hirzalla does not

teach that the user selects a scene signature descriptive of video content of a

scene. Ellis discloses (col.9, lines 32-35; col.31, lines 38-41) that the new

segment of interest such as types of programs or a commercial is determined by

the operator to identify new segment. Therefore, it would have been obvious to

one of ordinary skills in the art at the time of the invention to store audio/video

stream in the receiver and to selects a scene type as taught by Ellis in order to

easily recognize broadcast segments of interest (col.6, lines 44-45).

Regarding **claim 2,** "the apparatus, wherein each scene (62.sub.1,

62.sub.2, 64.sub.1, 64.sub.2, 66.sub.1, 66.sub.2, 68.sub.1, 68.sub.2) has a

length between 30 seconds and 10 minutes" Hirzalla discloses (col.4, lines 63-

67) that a typical sequence has a length of 30 seconds.

Hirzalla meets all the limitations of the claim except "the scenes (62.sub.1,

62.sub.2, 64.sub.1, 64.sub.2, 66.sub.1, 66.sub.2, 68.sub.1, 68.sub.2) are

overlapped at intervals between 1 second and 2 minutes." However, Ellis

discloses (col.38, lines 51-60) that the delay intervals for overlapping segments

may, for example, be 35 seconds. Therefore, it would have been obvious to one

of ordinary skills in the art at the time of the invention to have the interval

between overlapped scenes as taught by Ellis so no segments below that

specific threshold are lost due to insufficient information on overlapping scenes

(col.38, lines 58-59).

Regarding **claim 5,** "the apparatus, wherein the selection means (44)

selects a scene signature of a currently playing scene as the selected scene

signature" Hirzalla discloses (col.2, lines 15-18) that the candidate signature is

created on a real-time basis.

Regarding **claim 6,** "the apparatus, wherein the comparing means (104)

identifies a similar scene, which has a smallest signature comparison figure of

merit relative to the selected scene signature" Hirzalla discloses (col.1, lines 37-

48) that after the comparison is made between digital signatures with stored

digital signatures, if a positive match occurs, then device identifies user's

selected frame to play it on the display device.

Regarding **claim 7,** "the apparatus, wherein the comparing means (104)

determines whether the stored scene signatures are similar to the selected

signature within a predetermined threshold and the playing means (100) playing

a scene whose signature is within the threshold" Hirzalla discloses (col.1, lines

41-44) that the digital signatures are compared with the stored signature and

determines that the difference is within the threshold. Hirzalla further discloses

(col.3, line 66-col.4, line 3; col.5, lines 40-50) that after a positive match is found,

user receives an alert signal on the display device to play the matched scene.

Regarding **claim 8,** Hirzalla meets all the limitations of the claim except

"the apparatus, further including: a threshold selection means (108) that selects

the threshold value." However, Ellis discloses (col.18, lines 26-30) that the

warning message is used in setting the threshold for finding a match. Therefore,

it would have been obvious to one of ordinary skills in the art at the time of the

invention to set the threshold value as taught by Ellis in order to provide user an

option to select the scenes with their proximity.

Regarding **claim 9,** "the apparatus, wherein the video content includes a plurality of video streams (60.sub.1, 60.sub.2), and the apparatus further includes: a stream hop selection means (46) for selecting a current stream (202) which the play means (100) is playing" Hirzalla discloses (col.2, lines 15-18) that the candidate signature is created on a real-time basis.

As to "a stream hopping means (204) for comparing scene signatures of scenes of the current stream (202) with scene signatures of the plurality of video streams to identify a similar video stream (206)" Hirzalla discloses (col.1, lines 37-57; col.2, lines 13-15) that the processor compares stored signatures with live or recorded video stream to find a match. As to "the stream hopping means (204) causing the play means (100) to transfer the playing to the similar stream (206)" Hirzalla discloses (col.3, line 66-col.4, line 3) that after a match is found, user receives an alert signal on the display device to play the matched scene.

Regarding **claim 10,** "the apparatus, further including: a scene signatures table (92) for storing the scene signatures arranged by similarity" Hirzalla discloses (col.5, lines 61-63; col.6, lines 63-65) that the system creates a table for each special frame signature. As to "the comparing means (104) accessing the scene signatures table (92) to identify the similar scenes" Hirzalla discloses (col.5, lines 29-39, 63-66) that the system finds a match by searching for similar signature in the table.

Regarding **claim 11,** "the apparatus, further including: a signature computing means (54, 80, 82, 84, 90) for computing the scene signatures and storing the scene signatures in the scene signatures table (92)" Hirzalla discloses (col.4, lines 27-62) that the signature table is created based color categories, pixels of the current frame, etc to match with the selected frame as represented in Fig.4.

Regarding **claim 13,** "the apparatus, further including: the signature computing means (54, 80, 82, 84, 90) computing the scene signatures as the video content is recorded" Hirzalla discloses (col.4, lines 27-62) that the signature table is created based on the video stream received in the receiver as represented in Fig.4.

Hirzalla meets all the limitations of the claim except "a recording means (50) for recording video content." However, Ellis discloses (col.6, lines 40-49) that the audio/video signals received in apparatus are being stored in the device. Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention to store audio/video stream in the receiver as taught by Ellis in order to recognize broadcast segments of interest (col.6, lines 44-45).

Regarding **claim 14,** "the apparatus, wherein the signature computing means (54, 80, 82, 84, 90) includes: a scene defining processor (54) that defines overlapping scene intervals in the video content, each scene interval defining a

scene" Hirzalla discloses (col.2, lines 13-20) that the candidate signature is created from overlapping groups of frames.

Hirzalla meets all the limitations of the claim except "a signature processor (80, 82, 84) that computes a scene signature over each scene interval." However, Ellis discloses (col.38, lines 51-60) that the delay intervals for overlapping segments may, for example, be 35 seconds. Ellis further discloses (col.11, lines 28-33) that the controller communicates with a segment signature to store newly received segment signatures that is for predetermined time interval. Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention to have the interval between overlapped scenes as taught by Ellis so no segments below that specific threshold are lost due to insufficient information on overlapping scenes (col.38, lines 58-59).

Regarding **claim 15,** "the apparatus, wherein the scene defining processor (54) selects a spacing of the overlapping scene intervals based on a characteristic of the video content" Hirzalla discloses (col.2, lines 18-20; col.3, lines 1-3) that the candidate unique digital signatures are created from overlapping groups of frames based on the individual characteristic of special frames.

Regarding **claim 17,** "a method for playing video content" reads on the

method that process video for the automatic recognition of video sequences

(col.1, lines 5-8) disclosed by Hirzalla and represented in Fig. 2.

As to "the method including: comparing the selected scene signature with

a multiplicity of stored scene signatures which describe scenes of at least one

stored video stream to identify at least one scene signature that is similar to the

selected scene signature" Hirzalla discloses (col.1, lines 37-57; col.2, lines 13-

15) that the processor compares stored signatures with live or recorded video

stream to find a match.

As to "playing at least one scene whose scene signature is identified as

similar to the selected stream signature" Hirzalla discloses (col.3, line 66-col.4,

line 3) that after a match is found, user receives an alert signal on the display

device to play the matched scene.

Hirzalla meets all the limitations of the claim except "storing at least one

video stream." However, Ellis discloses (col.6, lines 40-49) that the audio/video

signals received in apparatus are being stored in the device. As to "selecting a

scene signature which describes a composite of characteristics of frames of a

video scene" Hirzalla discloses (col.1, lines 45-48; col.2, lines 13-20) that a

candidate's frame signature is created on a real time basis from successive

overlapping groups of frames. However, Hirzalla does not teach that the user

selects a scene signature descriptive of video content of a scene. Ellis discloses

(col.9, lines 32-35; col.31, lines 38-41) that the new segment of interest such as

types of programs or a commercial is determined by the operator to identify new

segment. Therefore, it would have been obvious to one of ordinary skills in the

art at the time of the invention to store audio/video stream in the receiver and to

selects a scene type as taught by Ellis in order to easily recognize broadcast

segments of interest (col.6, lines 44-45).

Regarding **claim 18,** "the method, wherein the comparing of the selected

scene signature with the multiplicity of stored scene signatures includes:

computing a scene comparison figure of merit comparing the selected scene

signature and each compared scene signature" Hirzalla discloses (col.1, lines 37-

48) that after the comparison is made between digital signatures with stored

digital signatures, if a positive match occurs, then device identifies user's

selected frame to play it on the display device.

As to "quantitatively comparing the scene comparison figure of merit with

a threshold and based on the computing and quantitative comparing, selecting

the similar scene signature" Hirzalla discloses (col.1, lines 41-44) that the digital

signatures are compared with the stored signature and determines that the

difference is within the threshold. Hirzalla further discloses (col.3, line 66-col.4,

line 3; col.5, lines 40-50) that after a positive match is found, user receives an

alert signal on the display device to play the matched scene.

3.   **Claims 3, 4, 16, 19, 21, and 22** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hirzalla et al in view of Ellis et al as applied to claim 1 above, and

further in view of US Patent 7,103,222 B2 to Peker et al (hereafter referenced as

Peker).

Regarding **claim 3**, "the apparatus wherein the scene signatures are

constructed using principal components vectors, the principle components

vectors being computed by principle component analysis of selected low level

features of the video content within the scene" Hirzalla discloses (col.1, line 61-

col.2, line 7) that the digital signature for frame is created using pixel values of

the frames from a video stream, the number of hue or luminance categories, and

a histogram representing the percentage of pixels in the defined categories.

Combination of Hirzalla and Ellis meets all the limitations of the claim except

"signatures are created using principle components analysis." However, Peker

discloses (col.1, line 67-col.2, line 3) that the principal component analysis and

factor analysis are known techniques used for low level features data. Therefore,

it would have been obvious to one of ordinary skills in the art at the time of the

invention to use PCA technique to receive low level feature data as taught by

Peker in order to explain variances of data attributes and also the distinction of

being the best linear transformation for keeping the subspace that has largest

difference.

Regarding **claim 4,** "the apparatus, wherein the low level features are selected from a group consisting of: an absolute average luminance parameter, an image luminance difference parameter, a frame complexity parameter, a mean absolute difference (MAD) motion estimation parameter, a motion parameter, an image texture parameter, a color distribution parameter, and a scene composition parameter" Peker discloses (col.4, lines 30-38) that the low level feature of content consist of motion activity, color, audio, texture etc. such as MPEG descriptors. Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention to use PCA technique to receive low level feature data as taught by Peker in order to explain variances of data attributes and also the distinction of being the best linear transformation for keeping the subspace that has largest difference.

Regarding **claim 16,** combination of Hirzalla and Ellis meets all the limitations of the claim except "the apparatus, wherein the selection means (44) selects the scene signature from a group of semantically identified scene signature values (122)." However, Peker discloses (col.1, lines 40-41) that the value/signature of a scene can be assigned by a user. Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention to let the user select the scene signature as taught by Peker in order to minimize the grouping criterion (col.1, lines 42-43).

Regarding **claim 19,** combination of Hirzalla and Ellis meets all the

limitations of the claim except "the method, further including: computing the

stored scene signatures based on low level features of the at least one video

stream." However, Peker discloses (col.4, lines 30-34) that the low level features

are selected based on motion activity, color, audio, and texture of video data.

Therefore, it would have been obvious to one of ordinary skills in the art at the

time of the invention to use PCA technique to receive low level feature data as

taught by Peker in order to explain variances of data attributes and also the

distinction of being the best linear transformation for keeping the subspace that

has largest difference.

Regarding **claim 21,** "the method, further including: the computing of the

stored scene signatures being performed during the recording" Hirzalla discloses

(col.4, lines 27-62) that the signature table is created based on the video stream

received in the receiver in real-time basis as represented in Fig.4.

Hirzalla meets all the limitations of the claim except "recording the at least

one stored video stream prior to the selecting." However, Ellis discloses (col.6,

lines 40-49) that the audio/video signals received in apparatus are being stored

in the device. Therefore, it would have been obvious to one of ordinary skills in

the art at the time of the invention to store audio/video stream in the receiver as

taught by Ellis in order to recognize broadcast segments of interest (col.6, lines

44-45).

Regarding **claim 22,** "the method, wherein the computing of the stored

scene signatures includes: defining overlapping scene intervals in the at least

one stored video stream, each scene interval defining a scene" Hirzalla discloses

(col.2, lines 13-20) that the candidate signature is created from overlapping

groups of frames.

Hirzalla meets all the limitations of the claim except "computing a scene

signature over each scene interval." However, Ellis discloses (col.38, lines 51-

60) that the delay intervals for overlapping segments may, for example, be 35

seconds. Ellis further discloses (col.11, lines 28-33) that the controller

communicates with a segment signature to store newly received segment

signatures that is for predetermined time interval. Therefore, it would have been

obvious to one of ordinary skills in the art at the time of the invention to have the

interval between overlapped scenes as taught by Ellis so no segments below that

specific threshold are lost due to insufficient information on overlapping scenes

(col.38, lines 58-59).

4.   **Claims 12 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Hirzalla et al in view of Ellis et al in view of Peker et al, and further in view of US

Patent 6,259,817 B1 to Ahmad et al (hereafter referenced as Ahmad).

Regarding **claim 12,** combination of Hirzalla and Ellis meets all the

limitations of the claim except "the apparatus, wherein the signature computing

means (54, 80, 82, 84, 90) includes: a low level feature processor (80) that

computes one or more low level video content features." However, Peker

discloses (col.4, lines 30-34) that the low level features are selected based on

motion activity, color, audio, and texture of video data. As to "a principle

components projector (82) that projects the low level video content features onto

a principle components space to define principle components vectors" Peker

discloses (col.1, line 67-col.2, line 3) that the principal component analysis and

factor analysis are known techniques define/used for low level features data.

Therefore, it would have been obvious to one of ordinary skills in the art at the

time of the invention to use PCA technique to receive low level feature data as

taught by Peker in order to explain variances of data attributes and also the

distinction of being the best linear transformation for keeping the subspace that

has largest difference.

Combination of Hirzalla, Ellis and Peker meets all the limitations of the

claim except "a scene signature generator (84) that combines the principle

components vectors of each scene to define the corresponding scene signature."

However, Ahmad discloses (col.4, lines 9-10, 20-30) that one or more

parameters are generated using principal component analysis and thereafter

each image value of this parameter is compared with another image value to find

the matching image. Therefore, it would have been obvious to one of ordinary

skills in the art at the time of the invention to use principal component analysis to

define the matching scene signature as taught by Ahmad in order to efficiently

store, display and search the plurality of video images and to categorize in a

manner permitting rapid searching (col.2, lines 5-7).

Regarding **claim 20,** combination of Hirzalla and Ellis meets all the

limitations of the claim except "the method, wherein the computing of the stored

scene signatures includes: performing principle components analysis of the low

level features to produce principle component values." Peker discloses (col.1,

line 67-col.2, line 3) that the principal component analysis and factor analysis are

known techniques define/used for low level features data. Therefore, it would

have been obvious to one of ordinary skills in the art at the time of the invention

to use PCA technique to receive low level feature data as taught by Peker in

order to explain variances of data attributes and also the distinction of being the

best linear transformation for keeping the subspace that has largest difference.

Combination of Hirzalla, Ellis and Peker meets all the limitations of the

claim except "combining the principle component values within the each scene to

define the corresponding scene signature." However, Ahmad discloses (col.4,

lines 9-10, 20-30) that one or more parameters are generated using principal

component analysis and thereafter each image value of this parameter is

compared with another image value to find the matching image. Therefore, it

would have been obvious to one of ordinary skills in the art at the time of the

invention to use principal component analysis to define the matching scene

signature as taught by Ahmad in order to efficiently store, display and search the

plurality of video images and to categorize in a manner permitting rapid

searching (col.2, lines 5-7).

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

- US Patent 6957387 to Barbieri discloses an apparatus for reproducing an

  information signal stored on a storage device.

- US Patent 7064796 to Roy discloses a system for re-identifying broadcast

  segments using statistical profiles.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to PINKAL CHOKSHI whose telephone number is (571)

270-3317. The examiner can normally be reached on Monday-Friday 8 - 5 pm (Alt.

Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Brian Pendleton can be reached on 571-272-7527. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PRC/
/Brian T. Pendleton/
Supervisory Patent Examiner, Art Unit 2623